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MICROALBUMINURIA IN NON-DIABETIC PATIENTS WITH METABOLIC SYNDROME IS A STRONG PREDICTOR OF SUBCLINICAL ATHEROSCLEROSIS: A MULTI-ETHNIC PERSPECTIVE

ACC Poster Contributions
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Background: Whether microalbuminuria (MICRO) in non-diabetic patients with metabolic syndrome (METS) influences subclinical atherosclerosis (SCA), quantified by coronary artery calcification (CAC) is unknown.

Methods: The study comprised 6814 asymptomatic men and women (52.85%), aged 45-84 yrs without prior cardiovascular disease, enrolled in the Multi-Ethnic Study of Atherosclerosis. Baseline measures assessed in all patients included urine albumin-creatinine ratio and coronary artery calcium (Agatston score) quantified by chest CT scanning. The 5907 non-diabetic individuals were divided based on the presence/absence of METS (National Cholesterol Education Program definition) and MICRO (30-300 mg/g) into 4 groups: 1) No METS + No MICRO (reference group) [70%] 2) MICRO-only [4%] 3) METS-only [23.3%] 4) METS+MICRO [2.7%]. Association with any CAC (CAC >0) and CAC 75th percentile was examined using multivariate logistic regression.

Results: Prevalence of CAC>0 was highest in METS+MICRO group (68.52%) compared to METS-only (54.18%) and reference group (44.54%). METS+MICRO was more predictive of coronary artery calcification as compared to METS alone in all races except Chinese on regression analysis (Table 1). This association was strongest in whites.

Conclusions: Microalbuminuria in non-diabetic patients with metabolic syndrome is an incremental predictor of SCA in the large majority of ethnic subgroups, and might explain recent findings of worse cardiovascular outcomes in this setting.

Crude and adjusted Odds Ratio (OR β) estimates associated with metabolic syndrome and microalbuminuria

		Agatston score α	CAC> 0		CAC > 75th pct	
	Group (n)	Mean (Min-Max)	OR	95% CI	OR	95% CI
A.	Unadjusted OR					
	MICRO only (235)	224.47 (0-6062.64)	1.74	1.333-2.272*	1.726	1.303-2.286*
	METS only (1377)	142.39 (0-4602.14)	1.472	1.302-1.664*	1.387	1.208-1.592*
	MICRO+METS (162)	247.48 (0-3253.58)	2.709	1.934-3.795*	3.069	2.235-4.214*
B.	Adjusted for age, gender and ethnicity					
	MICRO only	--	1.259	0.909-1.743	1.123	0.797-1.583
	METS only	--	1.622	1.402-1.876*	1.559	1.322-1.837*
	MICRO+METS	--	2.107	1.390-3.195*	2.676	1.794-3.991*
C.	Adjusted for above variables and known confounders†					
	MICRO only	--	1.194	0.847 -1.683	1.105	0.762-1.601
	METS only	--	1.423	1.215-1.667*	1.359	1.135-1.627*
	MICRO+METS	--	2.015	1.303-3.118*	2.541	1.667-3.875*
D.	Race stratified analysis adjusted for age, gender and known confounders†					
Whites	METS only (589)	214.1 (0-4602.14)	1.635	1.302-2.052*	1.763	1.391-2.234*
	MICRO+METS (56)	394.77 (0-3253.58)	3.186	1.331-7.624*	3.915	1.866-8.216*
Chinese	METS only (108)	84.56 (0-1193.51)	2.365	0.502-3.905	1.063	0.585 -1.929
	MICRO+METS (24)	163.86 (0-1306.13)	1.4	0.502-3.905	1.042	0.346-3.134
Blacks	METS only (327)	83.66 (0-3172.2)	1.322	0.985-1.775	1.396	0.973-2.002
	MICRO+METS (39)	232.95 (0-1927.43)	1.841	0.847-4.004	3.26	1.478-7.187*
Hispanics	METS only (353)	94.85 (0-2228.59)	1.582	1.169-2.141*	1.323	0.919-1.905
	MICRO+METS (43)	115.51 (0-674.09)	1.996	0.929-4.289	2.216	1.034-4.746*

†Adjusted in addition for smoking, family history of cardiovascular disease, LDL, antihypertensive medications, statin therapy, and serum creatinine. ☒ Phantom adjusted mean Agatston score calculated using electron-beam computed tomography and multidetector row helical computed tomography
β In comparison to reference group (No METS + No MICRO).
* Statistically significant